

204694-00099



PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: )  
: Examiner: NYA  
Milfred D. Hammerbacher, et al.. )  
: Group Art Unit: 1753  
Application No.: 10/626,868 )  
: Confirmation No.: 9785  
Filed: July 25, 2003 )  
: May 18, 2005  
For: PHOTOVOLTAIC APPARATUS )  
: INCLUDING SPHERICAL )  
: SEMICONDUCTING PARTICLES )

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

INFORMATION DISCLOSURE STATEMENT

Sir:

In compliance with the duty of disclosure under 37 C.F.R. § 1.56 and in accordance with the practice under 37 C.F.R. §§ 1.97 and 1.98, the Examiner's attention is directed to the documents listed on the enclosed forms PTO/SB/08A and PTO/SB/08B. In accordance with current practice, no copies of the listed U.S. patent documents are being provided. Copies of any other listed documents are enclosed.

In accordance with 37 CFR § 1.97(b)(3) this Information Disclosure Statement is being filed before the mailing of a first Office Action.

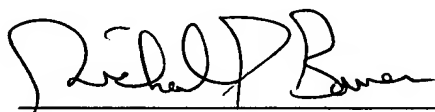
Applicants believe that no fee is required. However, the Commissioner is authorized to charge any fees deemed necessary and to make any refunds to Deposit Account 50-1710.

## CONCLUSION

It is respectfully requested that the below-listed information be considered by the Examiner and that a copy of the enclosed forms PTO/SB/08A and PTO/SB/08B be returned indicating that such information has been considered.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 625-3500. All correspondence should continue to be directed to our address given below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Richard P. Bauer", is written over a horizontal line.

Attorney for Applicants  
Richard P. Bauer  
Registration No. 31,588

PATENT ADMINISTRATOR  
KATTEN MUCHIN ROSENMAN  
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Chicago, Illinois 60661-3693  
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PTO/SB/08A (08-03)

Approved for use through 07/31/2006. OMB 0651-0031

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Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

Application Number	10/626,868
Filing Date	July 25, 2003
First Named Inventor	HAMMERBACHER, et al.
Art Unit	
Examiner Name	
Attorney Docket Number	204694.00099

Sheet 1 of 3

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
	1	US- 2002/0023675	02/28/02	Fukui et al.	
	2	US- 2002/0096206A1	07/25/02	Hamakawa et al.	
	3	US- 2002/0096207A1	07/25/02	Asai et al.	
	4	US- 3,025,335	03/13/62	Ralph	
	5	US- 4,361,598	11/30/82	Yoldas	
	6	US- 4,610,077	09/09/86	Minahan et al.	
	7	US- 4,909,856	03/20/90	Ralph	
	8	US- 4,957,601	09/18/90	Levine et al.	
	9	US- 5,081,069	01/14/92	Parket et al.	
	10	US- 5,360,491	11/01/94	Carey et al.	
	11	US- 5,482,568	01/09/96	Hockaday	
	12	US- 5,486,494	01/23/96	Hotchkiss et al.	
	13	US- 5,498,576	03/12/96	Hotchkiss et al.	
	14	US- 5,698,451	12/16/97	Hanoka	
	15	US- 5,785,768	07/28/98	Nakata	
	16	US- 6,156,967	12/05/00	Ralph et al.	
	17	US- 6,188,012	02/13/01	Ralph	
	18	US- 6,198,037	03/06/01	Nakata	
	19	US- 6,204,545	03/20/01	Nakata	

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)				
	1	1255303	11/06/02	EPC		

Examiner  
Signature

Date

Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

*(Use as many sheets as necessary)*

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Application Number	10/626,868
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Art Unit	
Examiner Name	
Attorney Docket Number	204694.00099

Sheet

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of

3

## U. S. PATENT DOCUMENTS

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## FOREIGN PATENT DOCUMENTS

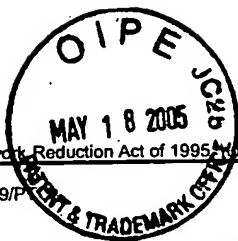
[illegible]

Examiner Signature		Date Considered	
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Application Number 10/626,868

Filing Date July 25, 2003

First Named Inventor HAMMERBACHER, et al.

Art Unit

Examiner Name

Attorney Docket Number 204694.00099

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of 3

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	1	Russell R. Schmit, et al., "The Effect of Silicon Purity on Spheral Solar Cell Processing and Performance".	
	2	John K. Arch, et al., "Characterization of Silicon Spheres for Spheral Solar Cells".	
	3	David C. Wong, et al., "The Effect of Annealing and Oxidation on APCVD TiOx Film and its Impact on the Process of Silicon Solar Cells".	
	4	First Technical Summary Report Covering the Period October 1, 1959 to December 31, 1959, "Investigation on Large Area Solar Cells Utilizing Spheres of Silicon", by Heinz F. Biekofsky	
	5	Second Technical Summary Report Covering the Period January 1, 1960 to June 30, 1960, "Investigation on Large Area Solar Cells Utilizing Spheres of Silicon" by Eugene L. Ralph, et al.	
	6	Werner Kern, et al., "Titanium Dioxide Antireflection Coating for Silicon Solar Cells by Spray Deposition", Reprinted from RCA Review Vol. 41, No. 2, June 1980	
	7	C. J. Brinker, et al. "Sol-Gel Derived Antireflective Coatings for Silicon" Solar Energy Materials 5 (1981) 159-172	
	8	J.L.Keddie, et al. "Effect of Heating Rate on the Sintering of Titanium Dioxide Thin Films: Competition between Densification and Crystallization", Dept. of Materials Science and Engineering, Cornell Univ., Ithica, NY	
	9	K.A. Vorotilov, et al. "Sol-gel TiO2 Films on Silicon Substrates", Moscow Institute of Radioengineering, Electronics and Automation, Vernadsky Prosp. 78, Moscow	

Examiner  
SignatureDate  
Considered

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